SERV. 34271

PIONEER®
The Art of Entertainment

Service Manual

ORDER NO.
ARP2830

FM/AM DIGITAL SYNTHESIZER TUNER

F-502RDS

F-502RDS-G

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model		Power Requirement	The voltage can be converted by the following method.
	F-502RDS	F-502RDS-G		
HEWZIX1K	○	–	AC 220-230V	AC 240V, *
HZIX1K	–	○	AC 220-230V	AC 240V, *
HEX1K	○	○	AC 220-230V	AC 240V, *
HBX1K	○	–	AC 240V	AC 220—230V, *

* : Alter the wiring of the Power-supply block at the primary winding of Power-transformer referring to the "Line Voltage Selection" described in Service Manual.

- **For the following: F-502RDS/HEX1K and HBX1K; F-502RDS-G/HZIX1K and HEX1K, refer to page 34.**
- **F-502RDS-G is the same as F-502RDS except for color.**

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1. EXPLODED VIEWS, PACKING AND PARTS LIST

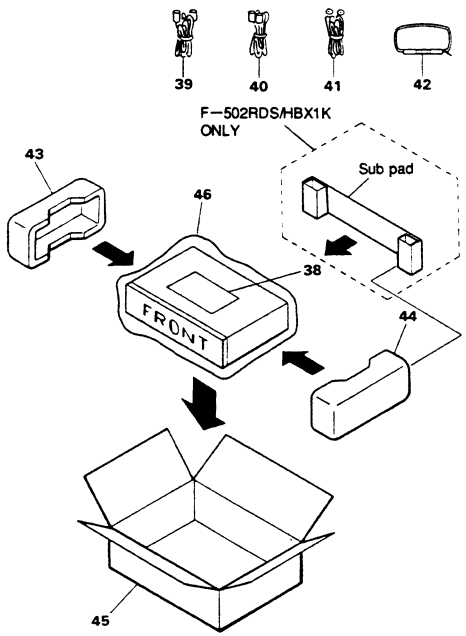
NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

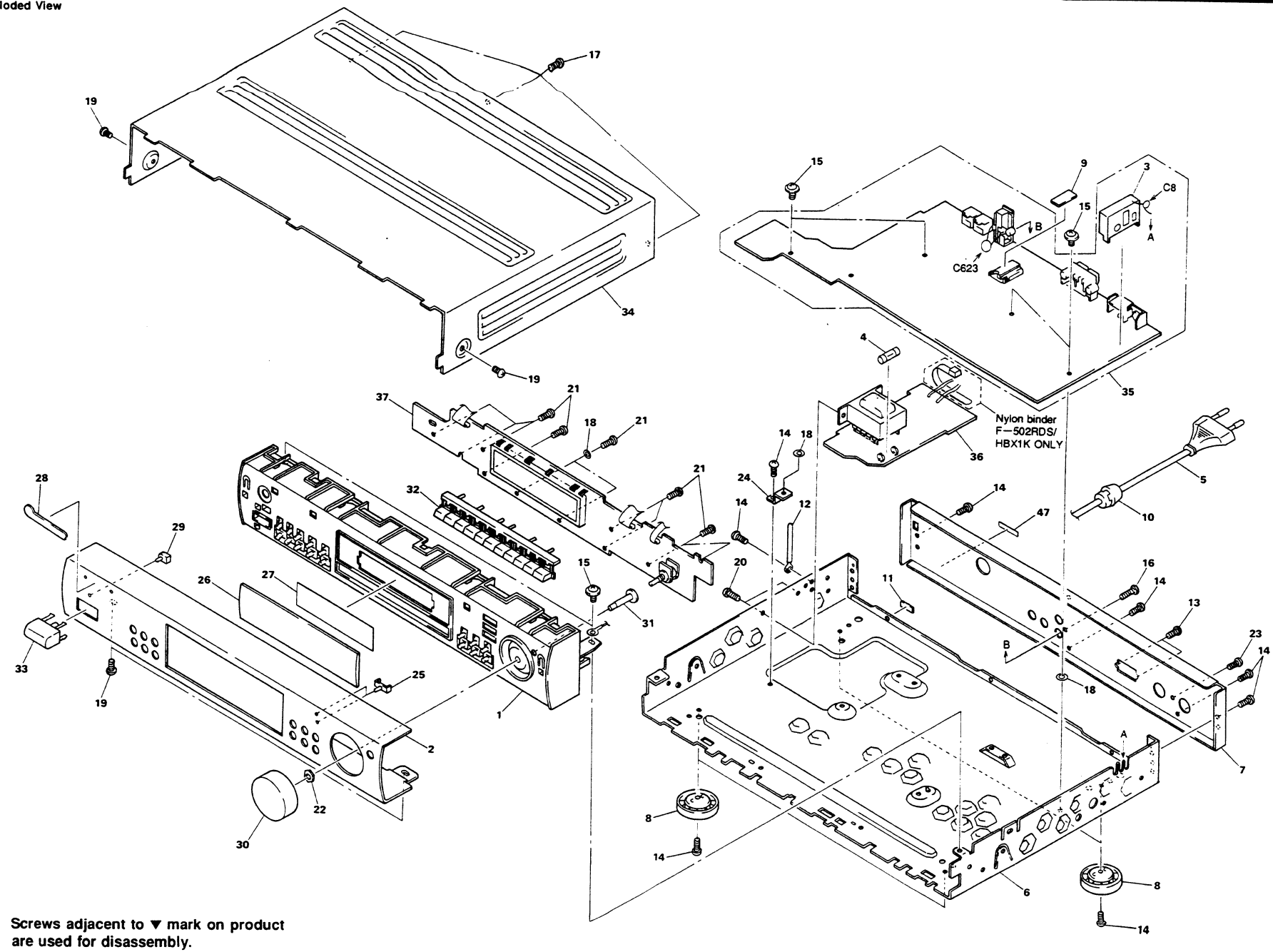
• Parts List

Mark	No.	Description	Parts No.
	1	PANEL BASE(PLS)	AMB2163
	2	FRONT PANEL(MTL)	ANB1568
	3	4 SERIAL F.E. MODULE ASSY	AXQ1004
⚠	4	FU1 1 = T500MA, V = 250	AEK−505
⚠	5	AC POWER CORD	ADG1138
NSP	6	CHASSIS (MTL)	ANA1224
	7	REAR PANEL (MTL)	ANC2144
	8	INSULATOR ASSY	AMR2140
NSP	9	CU PLATE	AEF1006
	10	STRAIN RELIEF	AEC−882
NSP	11	SPACER	AED1135
	12	BINDER	AEP−215
	13	SCREW	ABA−298
	14	SCREW (STEEL)	ABA1009
	15	SCREW (STEEL)	ABA1011
	16	SCREW (STEEL)	ABA1047
	17	SCREW (STEEL)	ABA1048
	18	WASHER	ABE−053
	19	SCREW	BBT30P060FZK
	20	SCREW	BCZ30P080FMC
	21	SCREW	BPZ26P080FMC
	22	NUT	NK70FUC
	23	SCREW	VMZ30P060FCU
NSP	24	PCB HOLDER	ANG1309
	25	LED LENS(PLS)	AAK2459
	26	ACRYL PANEL(PLS)	AAK2487
	27	FL FILTER(PLS)	AAK2495
	28	NAME PLATE (METAL)	AAM1058
	29	LED LENS	PNW2019
	30	ROTARY KNOB M	AAB1344
	31	KIN BUTTON	AAD1682
	32	STATION BUTTON(PLS)	AAD2465
	33	POWER BUTTON(PLS)	AAD2466
	34	BONNET(MTL)	ANE1443
	35	TUNER ASSEMBLY	AWZ4778
	36	POWER ASSEMBLY	AWZ4779
	37	DISPLAY ASSEMBLY	AWZ4780
	38	OPE. INSTRUCTIONS (German/Italian)	ARC1443
	39	PULG CORD (Pin plugs)	ADE−044
	40	CORD WITH PLUG	ADE−085
	41	FM ANTENNA	ADH1002
	42	LOOP ANTENNA	ATB1006
	43	SIDE PAD L	AHA1635
	44	SIDE PAD R	AHA1636
	45	PACKING CASE	AHD2605
	46	PACKAGING SHEET	AHG1107
	47	SERIAL SHEET	AAX1523

• Packing

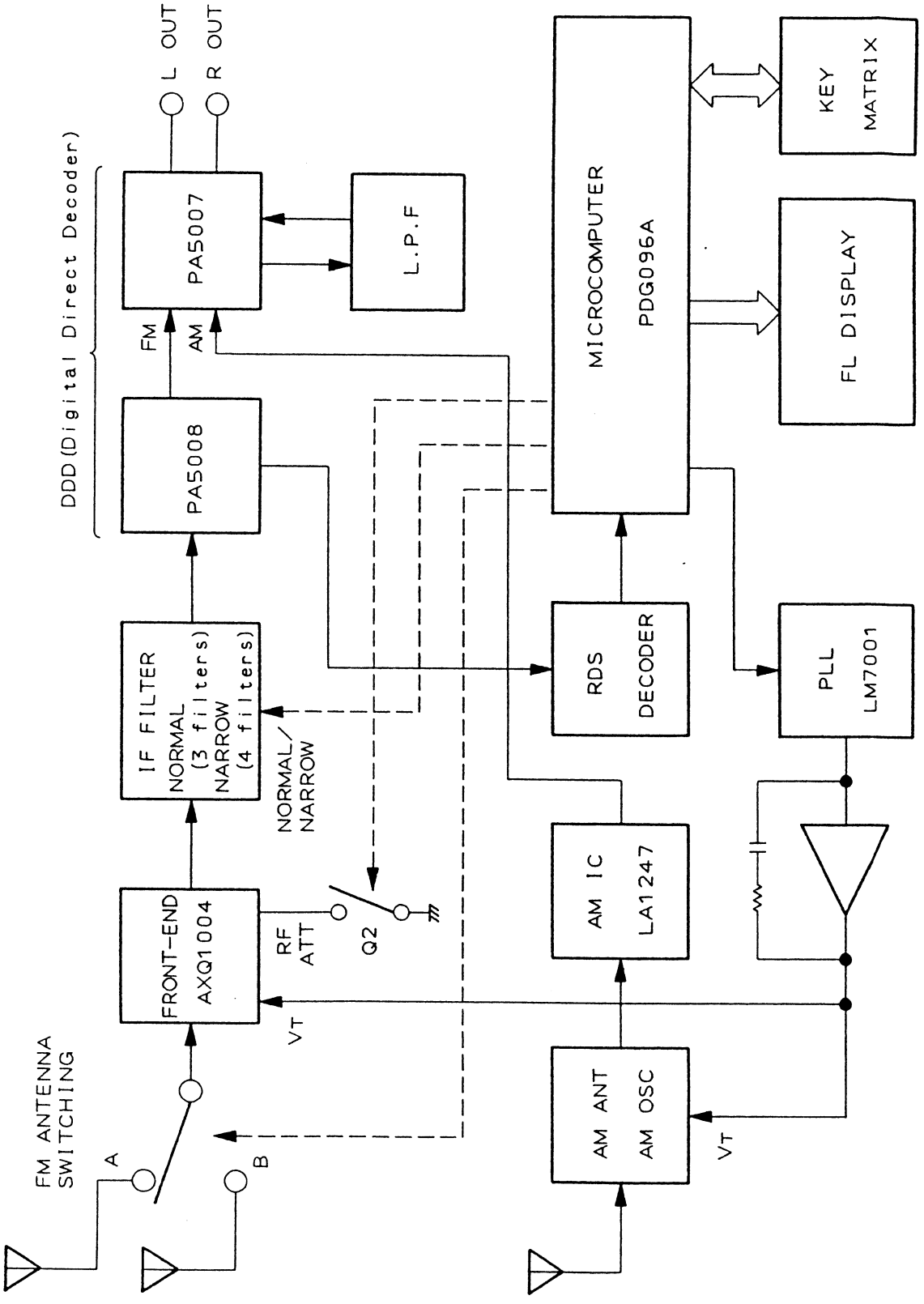


• Exploded View



NOTE : Screws adjacent to ▼ mark on product are used for disassembly.

2. BLOCK DIAGRAM



3. SCHEMATIC AND PCB CONNECTION DIAGRAMS

NOTE FOR SCHEMATIC DIAGRAMS (Type 3A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   mV : Signal voltage at FM 1kHz, 100% MOD.
   or ⏤ V :
   DC voltage (V) at no input signal unless otherwise noted.
   Value in ( ) is DC voltage at rated power.
   ⇦ mA or ⏤ mA :
   DC current at no input signal unless otherwise noted.
7. **OTHERS:**
   - ⊘ or ⊘ : Adjusting point.
   - ◄ : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH—□ ON THE SCHEMATIC DIAGRAM:**
   - SCH—□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

DISPLAY ASSY

S901: POWER(STANDBY/ON)	S914: 0/10
S902: CT/FREQ	S915: TUNING MODE
S903: CHARACTER/SEARCH	S916: 2
S904: ANT A/B	S917: 9
S905: RF. ATT	S918: 1
S906: RT/PS/PTY	S919: 8
S907: CLASS	S920: AM
S908: 4	S921: IF BAND
S909: DIRECT	S922: 6
S910: MEMORY	S923: 7
S911: FM	S924: MPX MODE
S912: 5	S925: MEMORY SCAN
S913: 3	S928: TUNING

NOTE FOR PCB CONNECTION DIAGRAMS

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

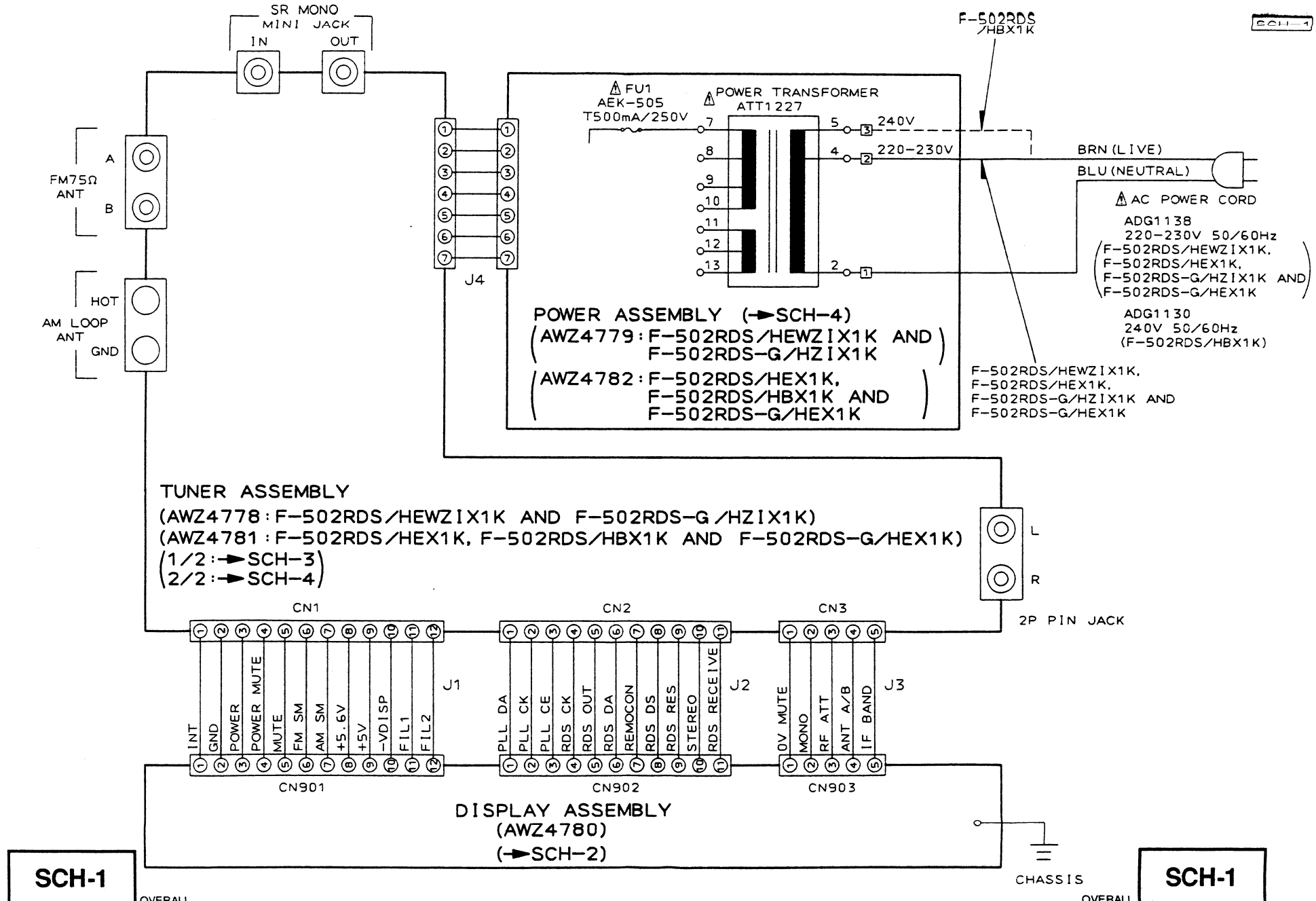
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E C B	E C B or E C B	Transistor
Q215 C E B	E C B or E C B	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	C513	Capacitor (Polarity)
C518	C518	Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ◎ (double circles) shows negative terminal.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

3.1 OVERALL WIRING DIAGRAM

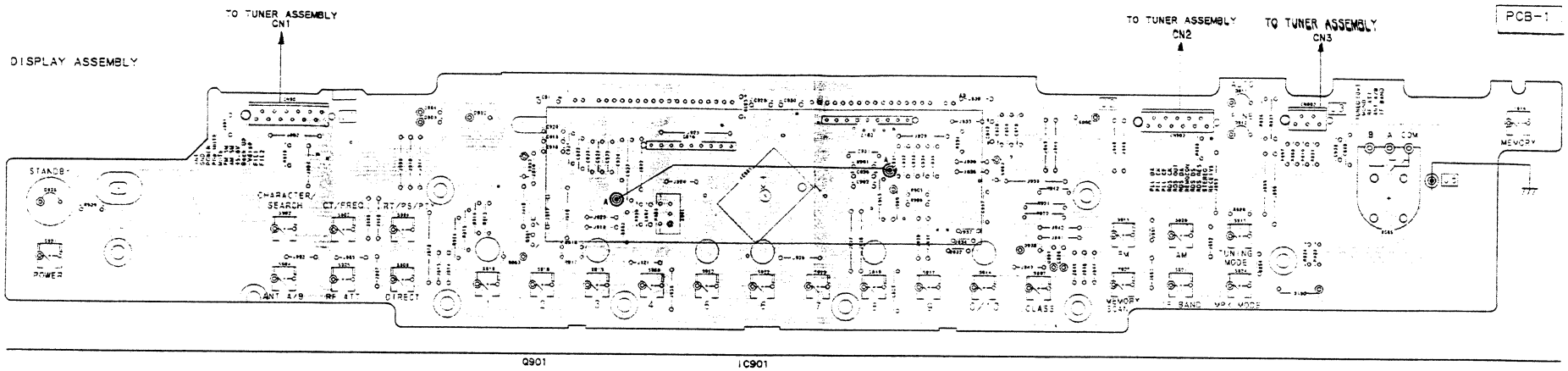


SCH-1 OVERALL

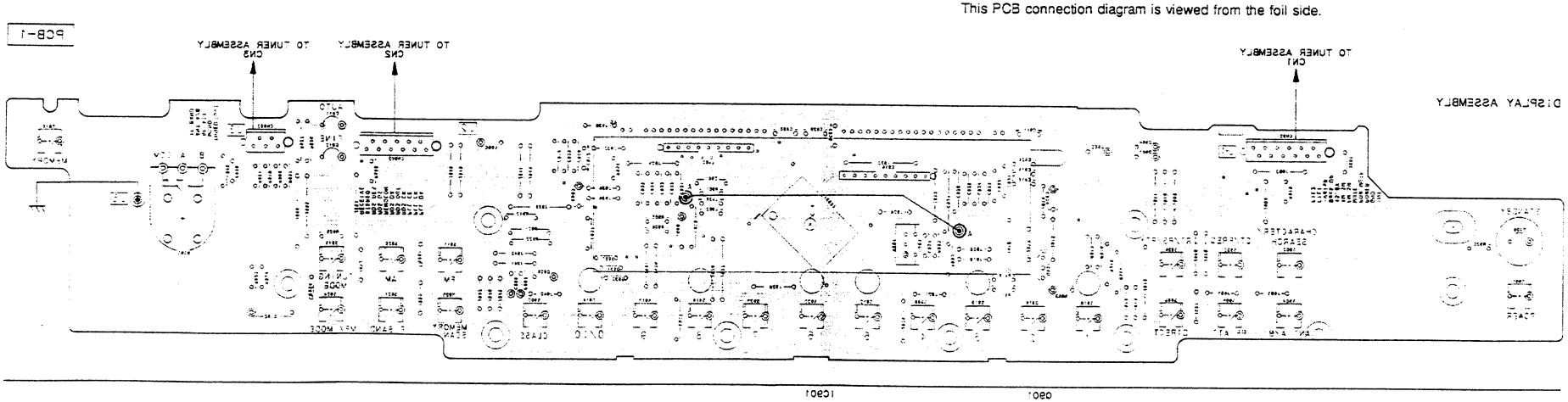
SCH-1 OVERALL

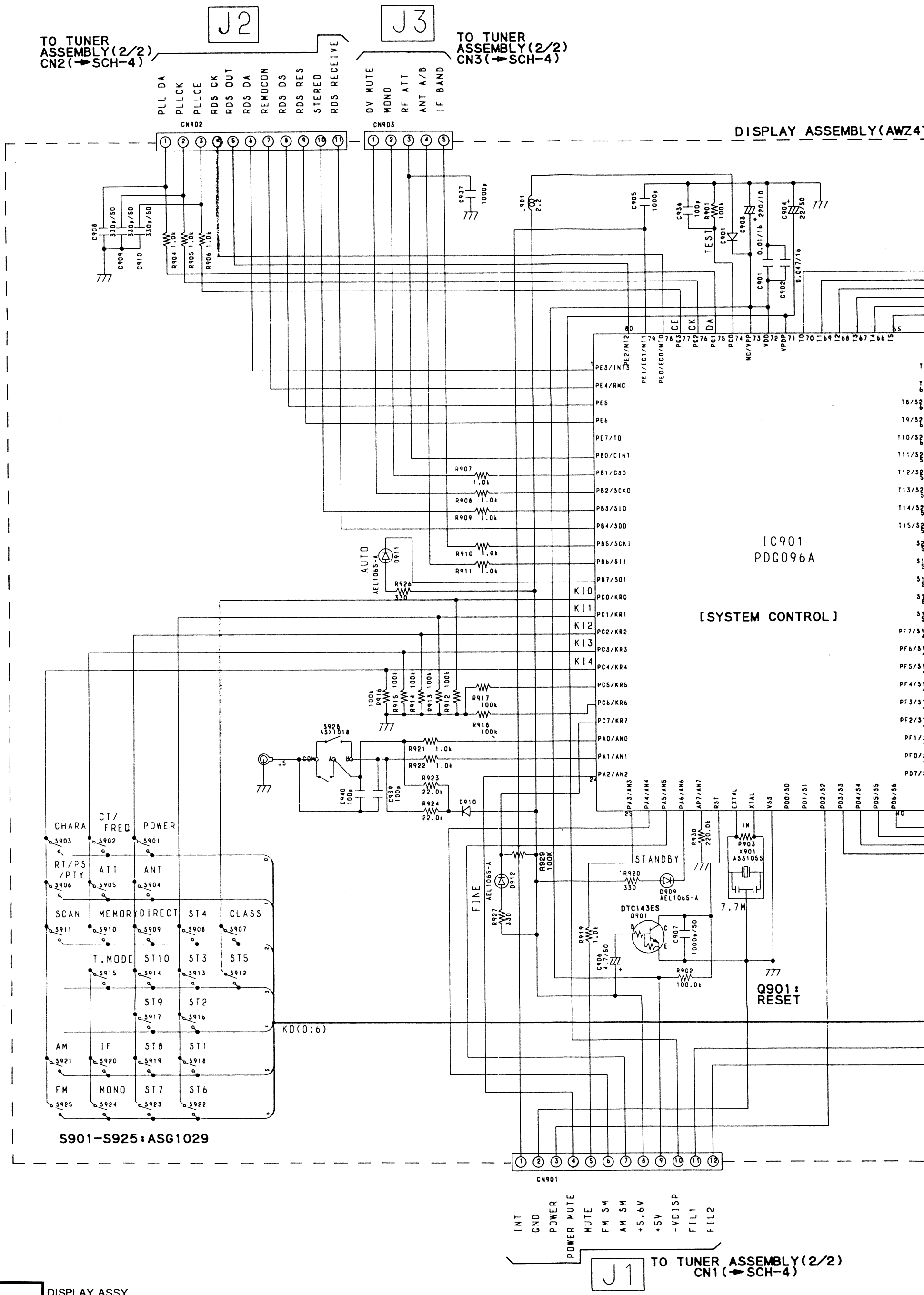
3.2 DISPLAY ASS'Y

This PCB connection diagram is viewed from the parts mounted side.



This PCB connection diagram is viewed from the foil side.

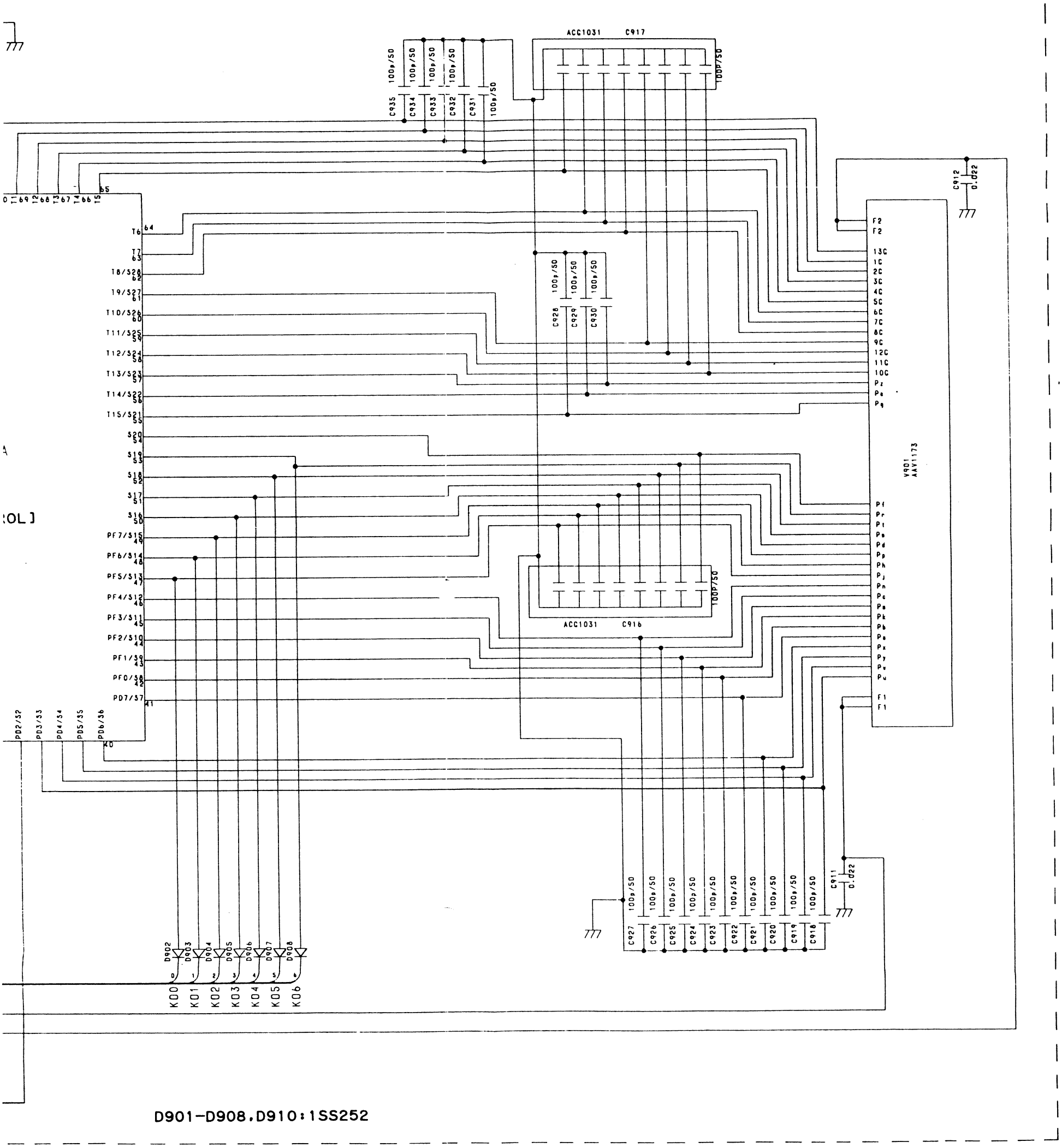




SCH-2 DISPLAY ASSY

SCH-2

\SSEMBLY(AWZ4780)



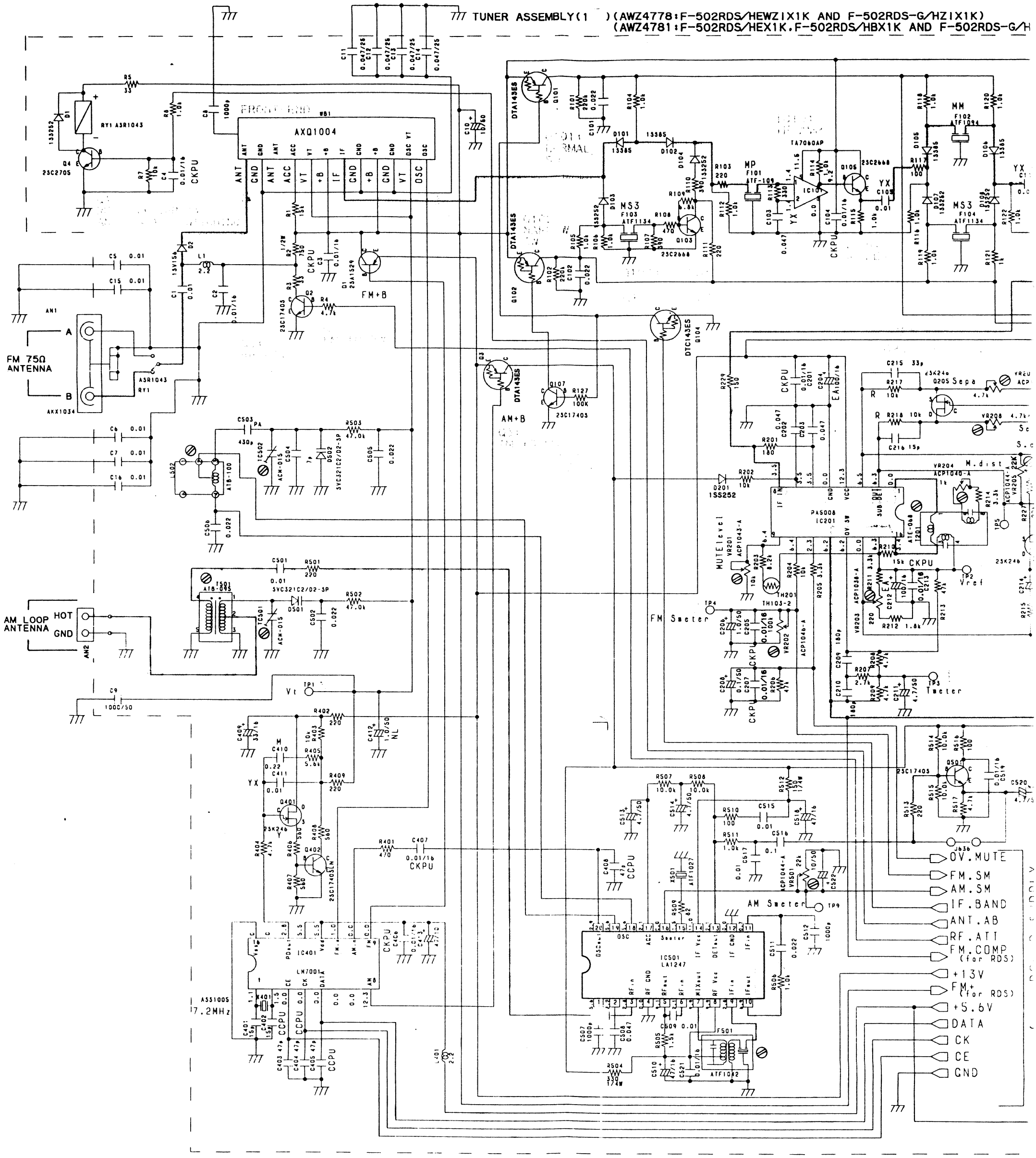
D901-D908,D910:1SS252

2/2)

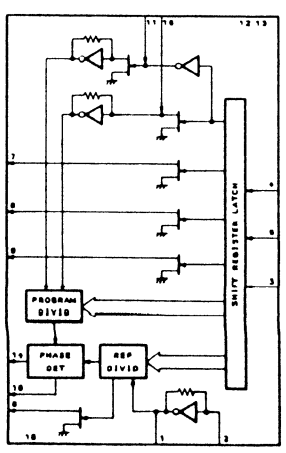
DISPLAY ASSY **SCH-2**

3.3 TUNER ASS'Y (1/2)

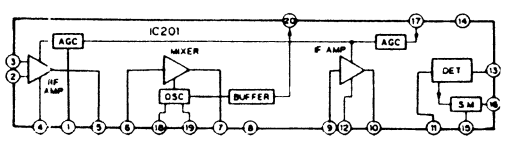
TUNER ASSEMBLY(1)(AWZ4778:F-502RDS/HEWZ1X1K AND F-502RDS-G/HZ1X1K)
(AWZ4781:F-502RDS/HEX1K.F-502RDS/HBX1K AND F-502RDS-G/H



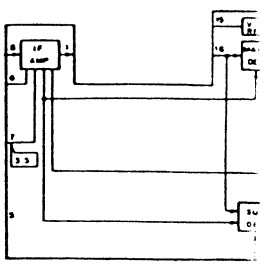
IC401:LM7001



IC501:LA1247



IC201:PA5008

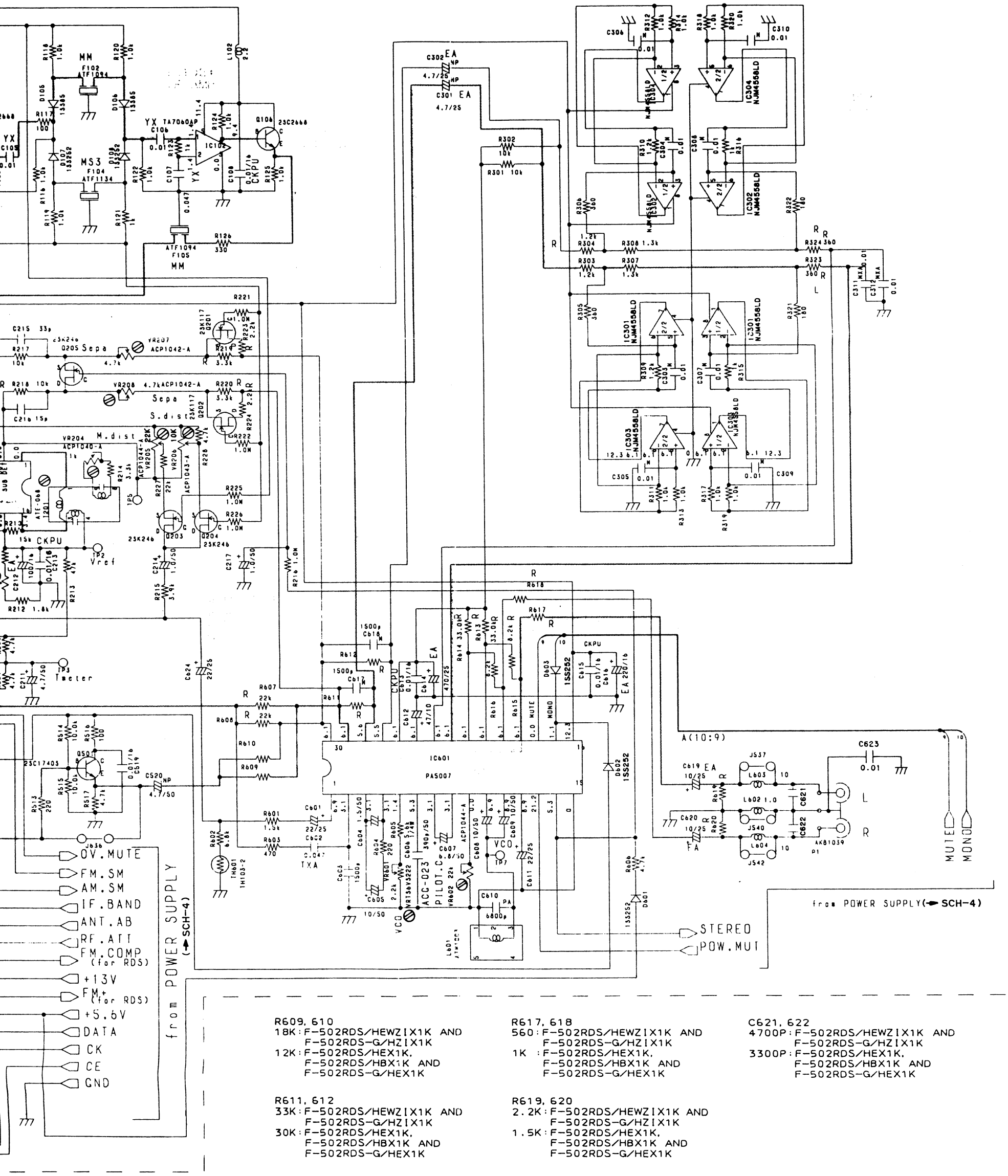


SCH-3 TUNER ASSY (1/2)

02RDS-G/HZ1X1K)
0X1K AND F-502RDS-G/HEX1K)

:FM Signal Route
:AM Signal Route

SCH-3



R609, 610
18K: F-502RDS/HEWZ1X1K AND F-502RDS-G/HZ1X1K
12K: F-502RDS/HEX1K, F-502RDS/HBX1K AND F-502RDS-G/HEX1K

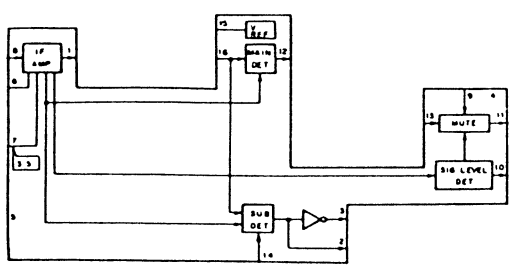
R611, 612
33K: F-502RDS/HEWZ1X1K AND F-502RDS-G/HZ1X1K
30K: F-502RDS/HEX1K, F-502RDS/HBX1K AND F-502RDS-G/HEX1K

R617, 618
560: F-502RDS/HEWZ1X1K AND F-502RDS-G/HZ1X1K
1K : F-502RDS/HEX1K, F-502RDS/HBX1K AND F-502RDS-G/HEX1K

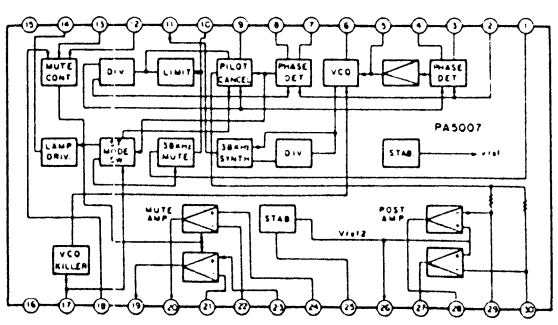
R619, 620
2.2K: F-502RDS/HEWZ1X1K AND F-502RDS-G/HZ1X1K
1.5K: F-502RDS/HEX1K, F-502RDS/HBX1K AND F-502RDS-G/HEX1K

C621, 622
4700P: F-502RDS/HEWZ1X1K AND F-502RDS-G/HZ1X1K
3300P: F-502RDS/HEX1K, F-502RDS/HBX1K AND F-502RDS-G/HEX1K

IC201:PA5008

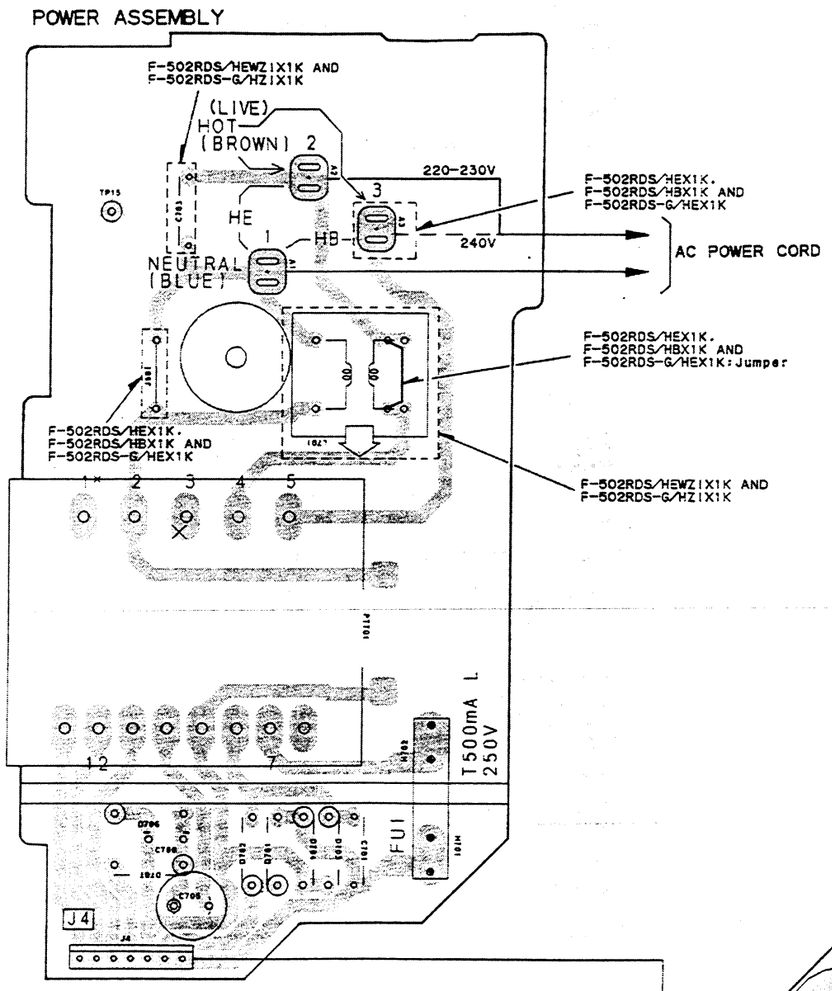


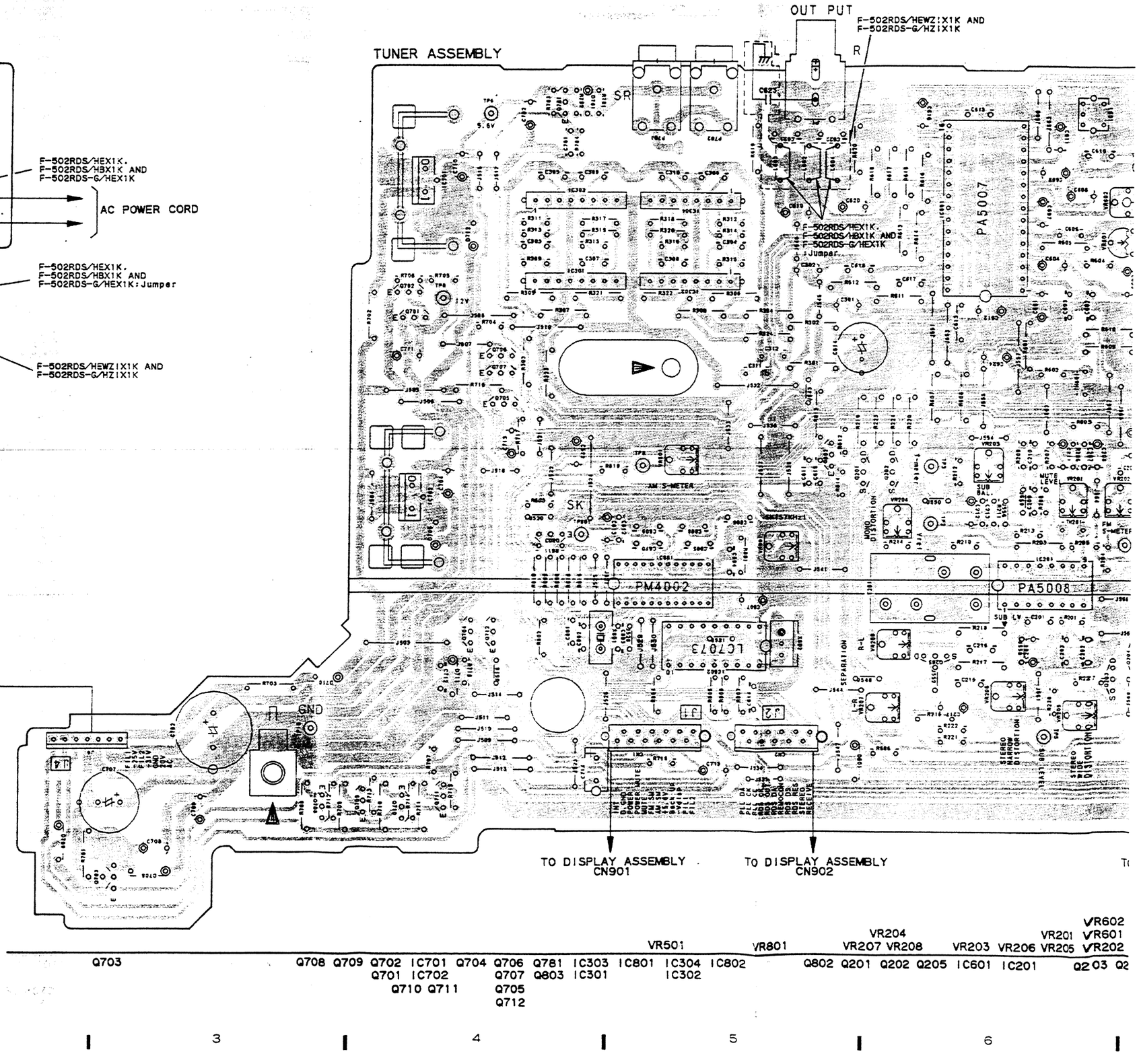
IC601:PA5007



TUNER ASSY (1/2)

SCH-3





Line Voltage Selection

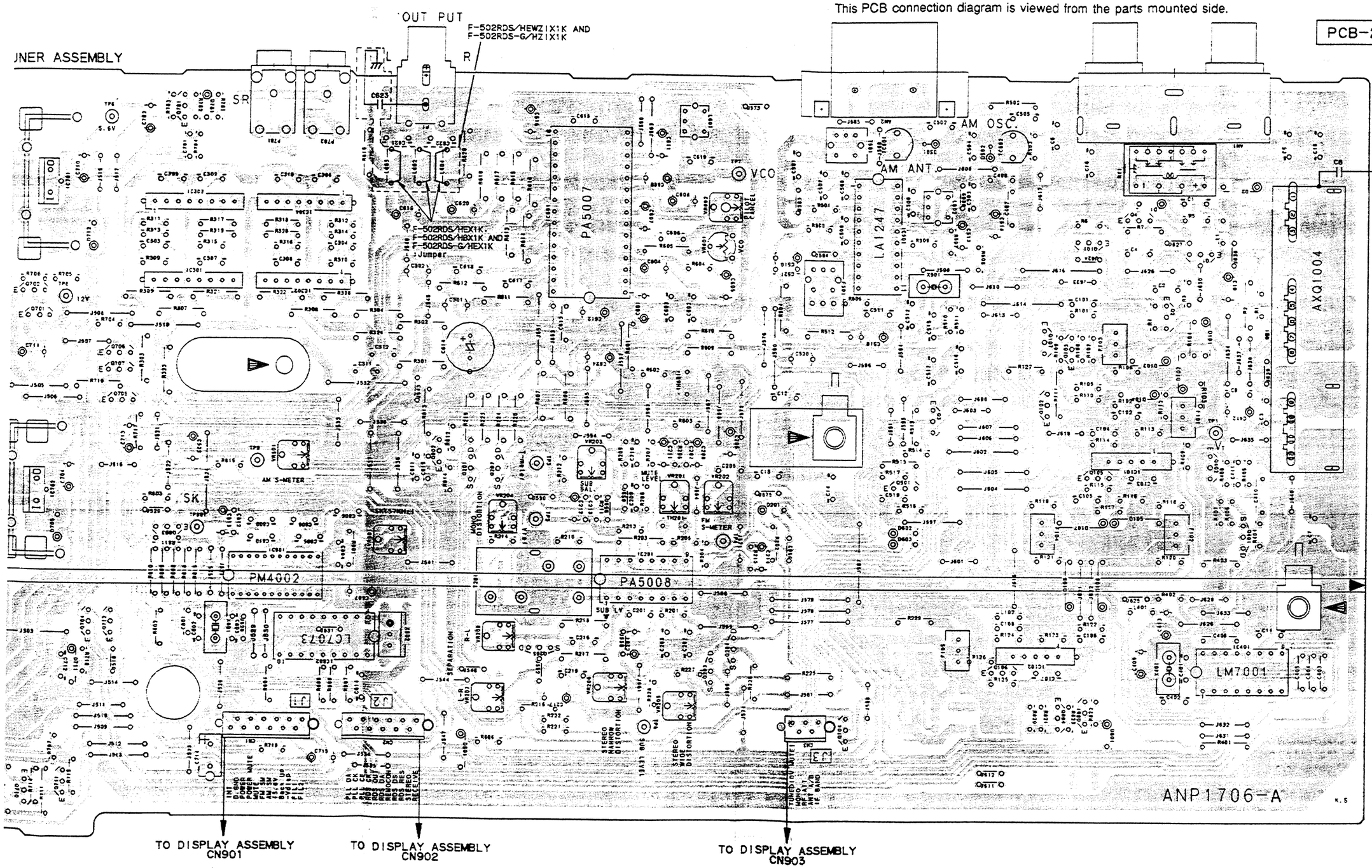
Line Voltage can be changed by the following modification:

1. Disconnect the AC power cord.
2. Remove the cover.
3. Change the connection of POWER ASSY primary pins.
4. Stick a line voltage label on the rear panel.

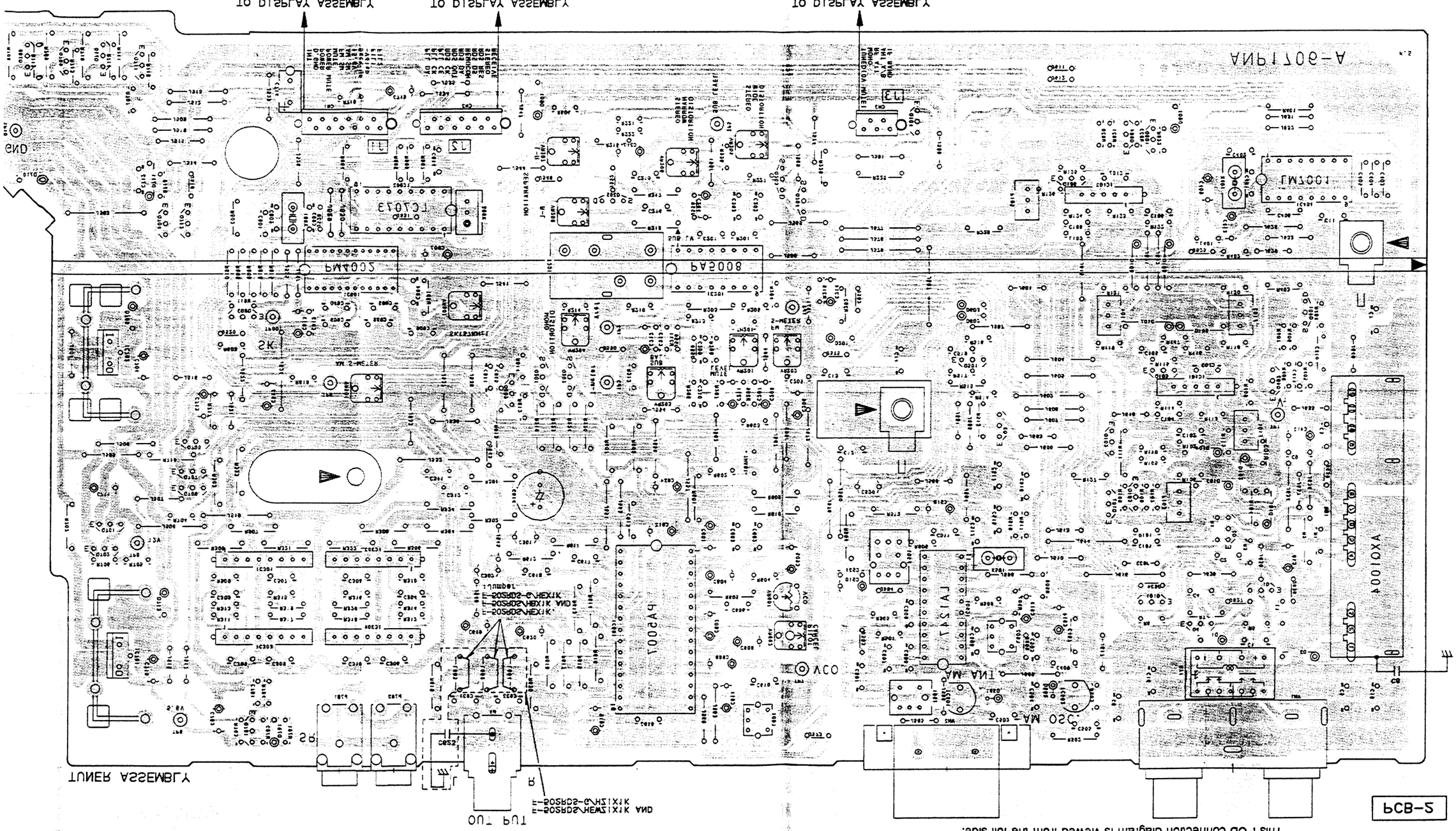
Part No.	Description
AAX-193	220V label
AAX-192	240V label

This PCB connection diagram is viewed from the parts mounted side.

PCB-2



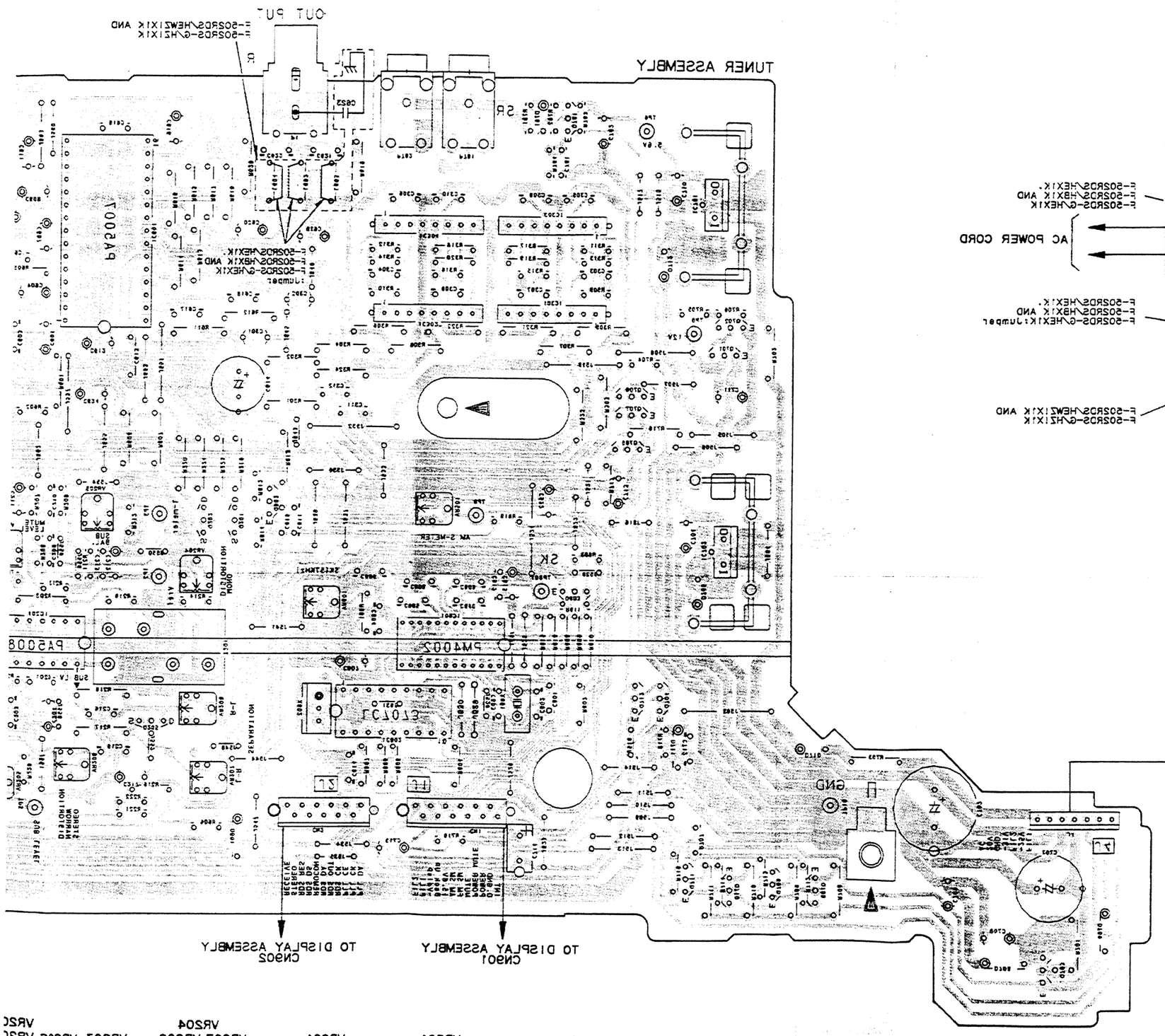
| | | |



This PCB connection diagram is viewed from the foil side.

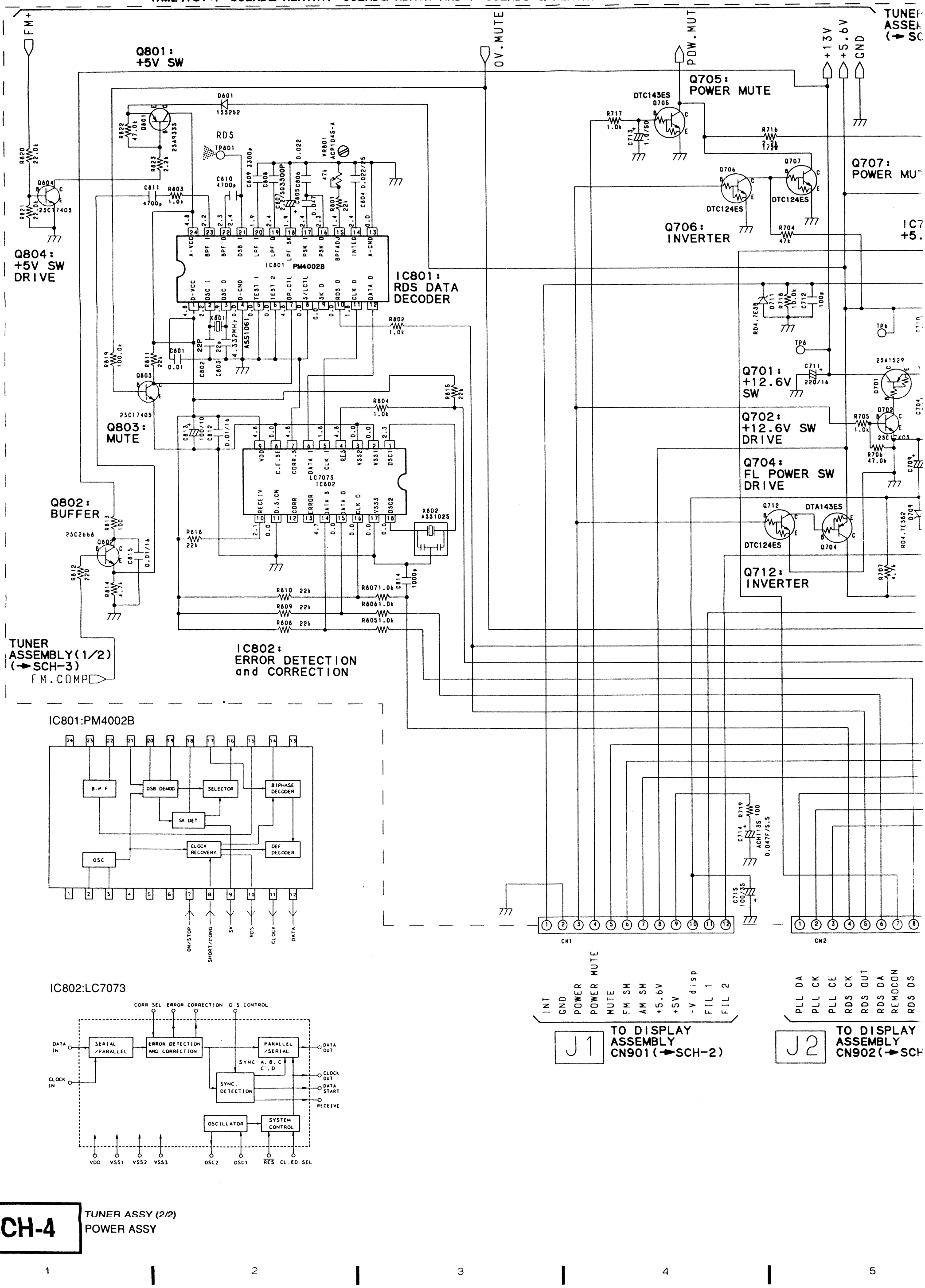
PCB-5

E-20SRD2, E-20SRD2-C


TUNER ASSEMBLY
POWER ASSEMBLY
AC POWER CORD
(LIVE)
HOT
(BROWN) 2
NEUTRAL
(BLUE)
220-230V
240V
F-50ZRDS/HEX1K.
F-50ZRDS/HBX1K AND
F-50ZRDS-G/HEX1K
F-50ZRDS/HEW1X1K AND
F-50ZRDS-G/HE1X1K
F-50ZRDS/HEX1K;Jumper
TO DISPLAY ASSEMBLY
CN901
TO DISPLAY ASSEMBLY
CN902
GND

3.4 TUNER ASS'Y (2/2) AND POWER ASS'Y

TUNER ASSEMBLY(2/2)(AWZ4778:F-502RDS/HEWZ1X1K AND F-502RDS-G/HZ1X1K)
(AWZ4781:F-502RDS/HEX1K,F-502RDS/HBX1K AND F-502RDS-G/HEX1K)



IC801:PM4002B

IC802:LC7073

SCH-4 *TUNER ASSY (2/2)*
POWER ASSY

TUNER ASSEMBLY(1/2) (→SCH-3)

+13V +5.6V GND

Q707: POWER MUTE

IC701: +5.6V REGULATOR

IC702: +12.6V REGULATOR

Q781: BUFFER

Q703: -29.4V REGULATOR

Q708-Q711: 2SC2878

Q708-Q711: FL POWER SW

POWER ASSEMBLY
(AWZ4779: F-502RDS/HEWZ1X1K AND F-502RDS-G/HZ1X1K)
(AWZ4782: F-502RDS/HEX1K, F-502RDS/HBX1K AND F-502RDS-G/HEX1K)

AEK-505

POWER TRANSFORMER

F-502RDS/HEWZ1X1K AND F-502RDS-G/HZ1X1K

F-502RDS/HEWZ1X1K, F-502RDS/HEX1K, F-502RDS-G/HZ1X1K AND F-502RDS-G/HEX1K

220-230V

240V

F-502RDS/HEX1K, F-502RDS/HBX1K AND F-502RDS-G/HEX1K

F-502RDS/HBX1K

AC POWER CORD

ADG1138
220-230V 50/60Hz
(F-502RDS/HEWZ1X1K, F-502RDS/HEX1K, F-502RDS-G/HZ1X1K AND F-502RDS-G/HEX1K)

ADG1130
240V 50/60Hz
(F-502RDS/HBX1K)

MUTE
FM.SM
AM.SM
DATA
CK
CE
RF.ATT
MONO
STEREO
IF.BAND
ANT.AB

TUNER ASSEMBLY(1/2)(→SCH-3)

CN2: PLL DATA, PLL CK, PLL CE, RDS CK, RDS OUT, RDS DA, REMOCON, RDS DS, RDS RES, STEREO, RDS RECEIVE

CN3: 0V MUTE, MONO, RF ATT, ANT A/B, IF BAND

TO DISPLAY ASSEMBLY CN902(→SCH-2)

J3 TO DISPLAY ASSEMBLY CN903(→SCH-2)

4. PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*→56×10¹ → 561*	*RD1/8PM 5 6 1 J*
47kΩ	*→47×10³ → 473*	*RD1/4PS 4 7 3 J*
0.5Ω	*→0R5*	*RN2H 0 R 5 K*
1Ω	*→010*	*RS1P 0 1 0 K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ→ 562×10¹ → 5621 ..... *RN1/4PC 5 6 2 1 F*

Mark	No.	Description	Parts No.
LIST OF ASSEMBLIES			
	TUNER ASSEMBLY		AWE1267
	├ TUNER ASSEMBLY		AWZ4778
	├ POWER ASSEMBLY		AWZ4779
	└ DISPLAY ASSEMBLY		AWZ4780
TUNER ASSEMBLY			
SEMICONDUCTORS			
	IC501		LA1247
	IC802		LC7073
	IC401		LM7001
	IC701		MC7805CT
	IC702		MC7812CT
	IC301－IC304		NJM4558LD
	IC601		PA5007
	IC201		PA5008
	IC801		PM4002B
	IC101,IC102		TA7060AP
	Q703		2SA1306A
	Q1,Q701		2SA1529
	Q801		2SA933S
	Q2,Q107,Q501,Q702,Q781,Q803,Q804		2SC1740S
	Q402		2SC1740SLN
	Q103,Q105,Q106,Q802		2SC2668
	Q4		2SC2705
	Q708－Q711		2SC2878
	Q201,Q202		2SK117
	Q203－Q205,Q401		2SK246
	Q3,Q101,Q102,Q704		DTA143ES
	Q706,Q707,Q712		DTC124ES
	Q104,Q705		DTC143ES
	D1,D103,D104,D107,D108,D201, D601－D603,D705,D710,D712,D781, D801		1SS252
	D101,D102,D105,D106		1SS85
	D2		1SV156
	D708		RD30ESB3
	D711		RD4.7ESB
	D709		RD4.7ESB2
	D501,D502		SVC321C2
RELAYS			
	RY1		ASR1043

Mark	No.	Description	Parts No.
COILS, FILTERS			
	L502		ATB－100
	L601		ATM1003
	L602		LAU010K
	L603,L604		LAU100K
	L1,L102,L401		LAU2R2K
	F101		ATF－109
	F501		ATF1042
	F102,F105		ATF1094
	F103,F104		ATF1134
	T501		ATB－095
	T201		ATE－068
CAPACITORS			
	C606	(390/50)	ACG－023
	C714		ACH1135
	C504		CCDCH070D50
	C802,C803		CCDCH220J50
	C216,C401,C402		CCMCH150J50
	C215		CCMCH330J50
	C403－C405,C408		CCPUSL470J50
	C412		CEANL010M50
	C520		CEANP4R7M50
	C206,C214,C217,C713		CEAS010M50
	C208		CEAS0R1M50
	C10,C522,C605,C608,C609		CEAS100M50
	C813		CEAS101M10
	C709,C715		CEAS101M35
	C604		CEAS1R5M50
	C601,C611,C624		CEAS220M25
	C711		CEAS221M16
	C807		CEAS2R2M50
	C409		CEAS330M16
	C413,C612,C782		CEAS470M10
	C510,C518		CEAS470M16
	C708		CEAS470M35
	C707		CEAS471M35
	C211,C513,C514		CEAS4R7M50
	C607		CEAS6R8M50
	C619,C620		CEEA100M25
	C204,C212		CEEA101M16
	C616		CEEA221M16
	C702		CEEA222M35
	C614		CEEA471M25
	C301,C302		CEEANP4R7M25
	C704		CEHAQ330M16
	C710		CEHAQ470M10
	C602		CFTXA473J50
	C8,C507,C512,C814		CKDYB102K50
	C603		CKDYB152K50
	C808,C809		CKDYB332K50
	C621,C622,C810,C811		CKDYB472K50
	C1,C5－C7,C15,C16,C105,C106, C411,C501,C509,C515,C517,C623		CKDYX103M25
	C516		CKDYX104M25
	C101,C102,C502,C505,C506, C511,C804,C806		CKDYX223M25
	C11－C14,C103,C107,C202, C203,C508,C805		CKDYX473M25
	C209,C210		CKMYB181K50
	C712,C781		CKPUYB101K50
	C9		CKPUYB102K50
	C2－C4,C104,C108,C201,C205, C207,C213,C406,C407,C519, C521,C613,C615,C801,C812,C815		CKPUYY103M16
	C303－C310		CQMA103J50
	C617,C618		CQMA152J50
	C410		CQMA224J50
	C311,C312		CQMXA103J100
	C503		CQPA431J100
	C610		CQPA682J100
RESISTORS			
	VR203	(220)	ACP1038
	VR204	(1K)	ACP1040
	VR207,VR208	(4.7K)	ACP1042
	VR201,VR206	(10K)	ACP1043
	VR205,VR501,VR602	(22K)	ACP1044
	VR801	(47K)	ACP1045
	VR202	(100K)	ACP1046
	VR601		VRTS6VS222
	R716		RD1/2PM222J
	R701		RD1/2PM471J
	R2		RD1/2PM751J
	R708－R711		RD1/4PM010J
	R512		RD1/4PM151J
	R504		RD1/4PM331J
	R217,R218		RDR1/4PM103J
	R303,R304		RDR1/4PM122J
	R307,R308		RDR1/4PM132J
	R321,R322		RDR1/4PM181J
	R223,R224,R619,R620		RDR1/4PM222J
	R607,R608		RDR1/4PM223J
	R219,R220		RDR1/4PM332J
	R611－R614		RDR1/4PM333J
	R305,R306,R323,R324		RDR1/4PM361J
	R617,R618		RDR1/4PM561J
	R615,R616		RDR1/4PM822J
	R311－R320		RDR1/6PU102J
	R301,R302		RDR1/6PU103J
	R309,R310		RDR1/6PU122J
	R702		RFA1/4PS100J
	R605		RN1/4PC5601F
	Other Resistors		RD1/8PM□□□J

Mark	No.	Description	Parts No.
OTHERS			
	TH201,TH601	THERMISTOR	TH103－2
	TC501,TC502	CERAMIC TRIMMER	ACM－015
	X401	CRYSTAL RESONATOR (7.200MHz)	ASS1005
	X802	CERAMIC RESONATOR (4.00MHz)	ASS1025
	X801	CRYSTAL RESONATOR	ASS1061
	X501	CERAMIC RESONATOR	ATF1027
		PIN JACK(2P)	AKB1039
		TERMINAL 2－P	AKE－060
		JACK	AKN－207
		SOCKET	AKX1034
		SCREW	ABA－298
		4 SERIAL F.E. MODULE ASSY	AXQ1004

Note: 4 serial F.E. module assy has no service part.

POWER ASSEMBLY

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	D701－D704		S5566
	D706,D707		S5566
COILS, FILTERS			
	L701		ATF1135
	T701		ATT1227
CAPACITORS			
	C701	(0.047)	ACG－009
	C703	(0.01/AC400V)	ACG1002
	C705		CEAS221M25
	C706		CKDYF473Z50

DISPLAY ASSEMBLY

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC901		PDG096A
	Q901		DTC143ES
	D901－D908,D910		1SS252
	D909,D911,D912		AEL1065
SWITCHES			
	S901－S925		ASG1029
	S928		ASX1018
COILS, FILTERS			
	L901		LAU2R2K
CAPACITORS			
	C916,C917 (100P)		ACG1031
	C936		CCDSL101J50
	C904		CEAS220M50
	C903		CEAS221M10
	C906		CEAS4R7M50
	C911,C912		CKDYF223Z50
	C918－C935,C939,C940		CKPUYB101K50
	C905,C907,C937		CKPUYB102K50
	C908－C910		CKPUYB331K50
	C902		CKPUYF473Z16
	C901		CKPUYY103M16
RESISTORS			
	All Resistors		RD1/8PM□□□J
OTHERS			
	X901	CERAMIC RESONATOR (7.70MHz)	ASS1055
	V901	FL TUBE	AAV1173

5. ADJUSTMENTS

5.1 FM TUNER ADJUSTMENTS

- Connect as shown in Fig. 2.
- Set the function to FM.

Step	Adjustment name	FM SG (1kHz, ± 75 kHz dev.)			FL display, IF BAND etc.	Location	Adjustment
		Frequency (MHz)	Modulation	Level (dBμV)			
1	T meter adjustment	99	MONO	60	98 MHz NORMAL	T201-B	Adjust so that the voltage between TP2 and TP3 becomes 0 ± 100 mV.
2	MONO distortion adjustment	99	MONO	60	98 MHz NORMAL	T201-A VR204	Adjust so that the distortion becomes minimum.
3	Sub-balance adjustment	99	MONO	60	98 MHz NORMAL	VR203	Adjust so that the AC voltage at TP5 becomes minimum.
4	VCO adjustment	108	OFF	60	108 MHz	VR601	Adjust so that the output at TP7 becomes 38 kHz ± 100 Hz.
5	Pilot cancel	107 (*2)	PILOT ONLY	60	107 MHz	VR602	Adjust so that the AC voltage at output terminal becomes minimum. (MAX LPF: OFF)
6	STEREO distortion adjustment (NORMAL)	89 (*2)	L-ONLY	60	89 MHz NORMAL	VR205	Adjust so that the distortion becomes minimum.
7	STEREO distortion adjustment (NARROW)	89 (*2)	L-ONLY	60	89 MHz NARROW	VR206	Adjust so that the distortion becomes minimum.
8	Separation adjustment	89 (*2)	R-ONLY	60	89 MHz NORAML	VR207	Adjust so that the separation R → L becomes maximum.
9			L-ONLY	60	89 MHz NORMAL	VR208	Adjust so that the separation L → R becomes maximum.
10	S meter adjustment	99	MONO	50	99 MHz NORMAL	VR202	Adjust so that the voltage between TP4 and GND becomes 4.9 V ± 0.1 V.
11	Muting level adjustment	99	MONO	17	99 MHz NORMAL	VR201	Adjust so that the muting is released at the input level shown on the left.
12	SK level adjustment	88	EXTERNAL *1 (RDS SG)	60	88 MHz NORMAL (ATT ON)	VR801	Adjust so that the voltage between TP801 and GND becomes maximum.

*1: RDS SG (AUDIO, PILOT, RDS, BK and DK: OFF, SK: ON)

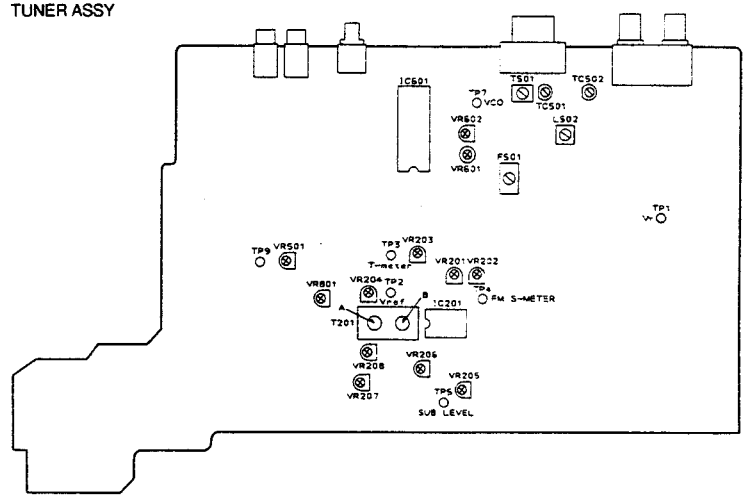
*2: Stereo modulation: Main 1 kHz L+R ± 68.25 kHz.
Pilot 19 kHz ± 6.75 kHz.

5.2 AM TUNER ADJUSTMENTS

- Connect as shown in Fig. 2.
- Set the function to AM.

Step	Adjustment name	AM SG (400 kHz, 30% modulation)		FL display	Adjustment	
		Frequency (kHz)	Level (dBμV/m)		Location	Specification
1	Front-end VT adjustment	NO INPUT SIGNAL		531 kHz	L502	Adjust so that the voltage between TP1 and GND becomes 1.25 V ± 0.1 V.
2				1602 kHz	TC502	Adjust so that the voltage between TP1 and GND becomes 10 V ± 0.3 V.
3	Front-end sensitivity-up adjustment	603	Low input level	603 kHz	T501	Adjust so that the voltage between TP9 and GND becomes maximum.
4		1395		1395 kHz	TC501	
5	Repeat steps 3 and 4 until optimum adjustment is obtained.					
6	IFT adjustment	603	Low input level	603 kHz	F501	Adjust so that the voltage between TP9 and GND becomes maximum.
7	S meter adjustment	1008	100	1008 kHz	VR501	Adjust so that the voltage between TP9 and GND becomes 4.5 V ± 0.1 V.

TUNER ASSY



DISPLAY ASSY

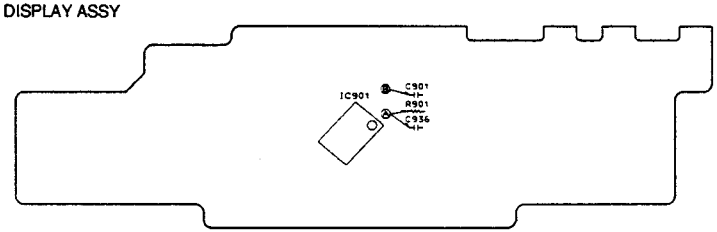


Fig. 1 Adjustment Points

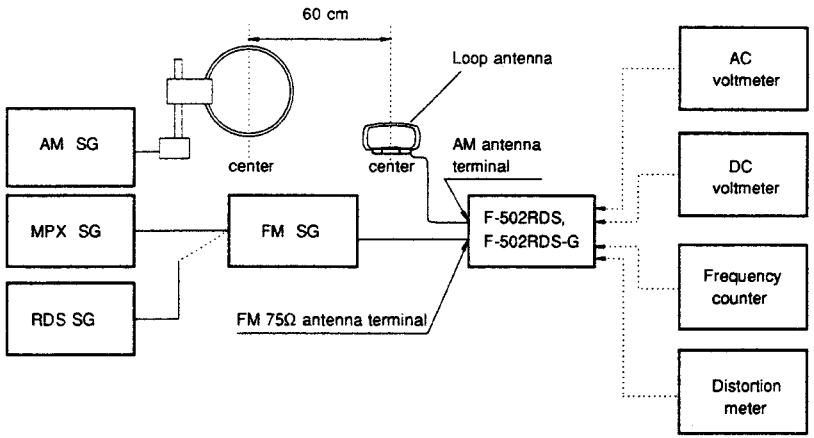


Fig. 2 Connection Diagram

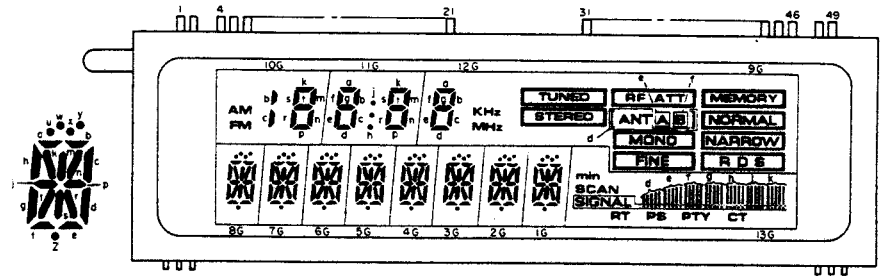
F-502RDS, F-502RDS-G

6. FL INFORMATION

■ AAV1173 (DISPLAY ASSY : V901)

● FL Tube

● Grid and Segment Assignment



● Pin Connection

Terminal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Electrode	F1	F1	NP	S17	S18	S20	S19	S1	S2	S10	S11	S3	S12	S9	S8	S13	S4	S15	S16	S14	S6	NP	NP	NP	NP
Terminal No.	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	
Electrode	NP	NP	NP	NP	NP	S7	S5	S21	10G	11G	12G	9G	8G	7G	6G	5G	4G	3G	2G	1G	13G	NP	F2	F2	

Notes) F : Filament G : Grid S : Segment (Anode) NP : No Pin

● Anode Connection

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G
S1	a	a	a	a	a	a	a	a	TUNED	AM	a	a	min
S2	b	b	b	b	b	b	b	b	STEREO	b	b	b	SCAN
S3	c	c	c	c	c	c	c	c	RF ATT	c	c	c	SIGNAL
S4	d	d	d	d	d	d	d	d	ANT	FM	d	d	d
S5	e	e	e	e	e	e	e	e	A	—	e	e	e
S6	f	f	f	f	f	f	f	f	B	—	f	f	f
S7	g	g	g	g	g	g	g	g	MONO	—	g	g	g
S8	h	h	h	h	h	h	h	h	FINE	—	h	MHz	h
S9	j	j	j	j	j	j	j	j	MEMORY	—	j	kHz	j
S10	k	k	k	k	k	k	k	k	NORMAL	k	k	5	k
S11	m	m	m	m	m	m	m	m	NARROW	m	m	—	RT
S12	n	n	n	n	n	n	n	n	RDS	n	n	—	PS
S13	p	p	p	p	p	p	p	p	—	p	p	—	PTY
S14	r	r	r	r	r	r	r	r	—	r	r	—	CT
S15	s	s	s	s	s	s	s	s	—	s	s	—	ON
S16	t	t	t	t	t	t	t	t	—	t	t	—	—
S17	u	u	u	u	u	u	u	u	—	—	—	—	—
S18	w	w	w	w	w	w	w	w	—	—	—	—	—
S19	x	x	x	x	x	x	x	x	—	—	—	—	—
S20	y	y	y	y	y	y	y	y	—	—	—	—	—
S21	z	z	z	z	z	z	z	z	—	—	—	—	—

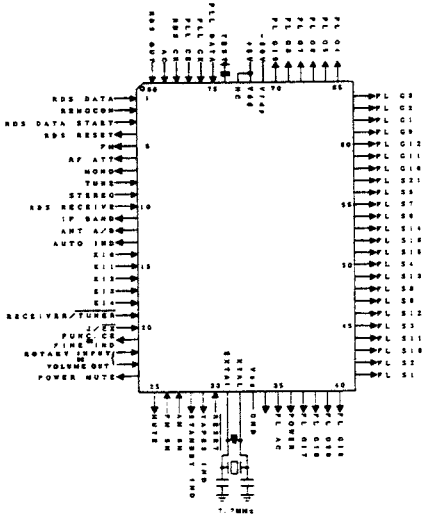
7. IC INFORMATION

- *The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.*

■ PDG096A (IC901)

● System Control

- Pin Assignment (Top View)



- Pin Function

No.	Name	I/O	Description	ACT.
1	RDS DATA	I	DATA from LC7073	–
2	REMOCON	I	REMOCON Signal	–
3	RDS DATA START	I	Synchronized Signals of each block from LC7073	–
4	RDS RESET	O	Reset output to LC7073 when reception frequency is altered	–
5	FM	O	FM BAND select	H
6	RF ATT	O	RF ATT ON/OFF	H
7	MONO	O	FM MONO output	H
8	TUNE	I	TUNE signal	L
9	STEREO	I	STEREO signal	L
10	RDS RECEIVE	I	RDS verification indicator signal	L
11	IF BAND	O	Switching IF BAND (TUNER only)	–
12	ANT A/B	O	Switching ANTENNA (TUNER only)	–
13	AUTO IND	O	TUNING MODE AUTO operation MODE LED ON/OFF (TUNER only)	L
14	KI 0	I	KEY SCAN Input 0	H
15	KI 1		KEY SCAN Input 1	
16	KI 2		KEY SCAN Input 2	
17	KI 3		KEY SCAN Input 3	
18	KI 4		KEY SCAN Input 4	
19	RECEIVER/ TUNER	I	Switching RECEIVER/TUNER	–
20	J / EX	I	J (H) / EX (L) input	–
21	FUNC.CE	O	Function switching IC (TC9163N) Chip enable (RECEIVER only)	H
	FINE IND	O	TUNING MODE FINE operation MODE LED ON/OFF (TUNER only)	L
22	VOLUME OUTPUT	O	VOLUME control (Pin No. 22 : UP Pin No. 23 : DOWN)	H
23	ROTARY INPUT	I	Rotary Encoder A/B (Pin No. 22 : A, Pin No. 23 : B)	–
24	POWER MUTE	O	MUTE control	H
25	MUTE	O	MUTE control	H
26	FM S METER	I	FM S METER input (TUNER only)	A/D
27	AM S METER	I	AM S METER input (TUNER only)	A/D
28	STANDBY IND	O	LED for STANDBY ON/OFF	L
29	TAPE2 IND	O	LED for TAPE2 ON/OFF (RECEIVER only)	H
30	RESET	I	μ-COM. RESET input	–
31	EXTAL		Connected to Ceramic oscillator (7.7MHz)	–
32	XTAL			
33	Vss		Reference Voltage (GND)	–
34	——	O	Not Used	–
35	FL AC	O	FL AC ON/OFF	L
36	POWER	O	Switching POWER ON/OFF	H
37	FL S17	O	FL control segment output	H
38	FL S18			
39	FL S20			
40	FL S19			
41	FL S1			
42	FL S2			
43	FL S10			
44	FL S11			
45	FL S3			
46	FL S12			
47	FL S9 /KO 0	O	FL control segment output/KEY SCAN output	H
48	FL S8 /KO 1			
49	FL S13 /KO 2			
50	FL S4 /KO 3			
51	FL S15 /KO 4			
52	FL S16 /KO 5			
53	FL S14 /KO 6			
54	FL S6 /KO 7			
55	FL S7	O	FL control segment output	H
56	FL S5			
57	FL S21			
58	FL G10	O	FL control timing output	H
59	FL G11			
60	FL G12			
61	FL G9			
62	FL G1			
63	FL G2			
64	FL G3			
65	FL G4			
66	FL G5			
67	FL G6			
68	FL G7			
69	FL G8			
70	FL G13			
71	Vfdp		Negative voltage (−30V) for FDP input	–
72	Vdd		+5V Power supply	–
73	——		Connected to Vdd	–
74	TEST	I	TEST MODE	H
75	PLL DATE	O	Tuner PLL IC (LM7001) DATA	–
76	PLL CK	O	Tuner PLL IC (LM7001) CLOCK	–
77	PLL CE	O	Tuner PLL IC (LM7001) Chip enable	H
78	RDS CK.	I	Synchronized Clock of each bits from LC7073	–
79	AC	I	AC PULS input	–
80	RDS OUT	I	Effective RDS signal verification	L

F-502RDS, F-502RDS-G

8. FOR F-502RDS/HEX1K, HBX1K, F-502RDS-G/HZIX1K AND HEX1K

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

F-502RDS/HEX1K, HBX1K, F-502RDS-G/HZIX1K, HEX1K and F-502RDS/HEWZIX1K have the same construction except for the following:

Mark	Symbol & Description	Part No.					Remarks
		F-502RDS/ HEWZIX1K	F-502RDS/ HEX1K	F-502RDS/ HBX1K	F-502RDS-G/ HZIX1K	F-502RDS-G/ HEX1K	
	TUNER assembly	AWZ4778	AWZ4781	AWZ4781	AWZ4778	AWZ4781	
	POWER assembly	AWZ4779	AWZ4782	AWZ4782	AWZ4779	AWZ4782	
⚠	AC power cord	ADG1138	ADG1138	ADG1130	ADG1138	ADG1138	
	Rotary knob M	AAB1344	AAB1344	AAB1344	AAB1346	AAB1346	
	KIN button	AAD1682	AAD1682	AAD1682	AAD2469	AAD2469	
	Station button (PLS)	AAD2465	AAD2465	AAD2465	AAD2467	AAD2467	
	Power button (PLS)	AAD2466	AAD2466	AAD2466	AAD2468	AAD2468	
	Name plate (METAL)	AAM1058	AAM1058	AAM1058	AAM1059	AAM1059	
	Serial sheet	AAX1523	.....	.....	AAX1523	.....	
	Screw (STEEL)	ABA1047	.....	.....	ABA1047	.....	
	Binder	AEP-215	AEP-215	.....	AEP-215	AEP-215	
	Nylon binder	.....	.....	AEC-093	.....	.....	*1
	Packing case	AHD2605	AHD2605	AHD2607	AHD2606	AHD2606	
	Sub pad (PAP)	.....	.....	AHB1122	.....	.....	*2
	Air cap	.....	.....	AHG1203	.....	.....	*3
	Panel base (PLS)	AMB2163	AMB2163	AMB2163	AMB2173	AMB2173	
	Front panel (MTL)	ANB1568	ANB1568	ANB1568	ANB1571	ANB1571	
	Rear panel (MTL)	ANC2144	ANC2115	ANC2115	ANC2145	ANC2115	
	Bonnet (MTL)	ANE1443	ANE1443	ANE1443	ANE1444	ANE1444	
	Operating instructions (German/Italian)	ARC1443	.....	.....	ARC1443	.....	
	Operating instructions (English/German/French/ Italian/Swedish/Dutch/ Spanish/Portuguese)	.....	ARE1291	.....	.....	ARE1291	
	Operating instructions (English)	.....	.....	ARB1459	.....	.....	
	Screw	.....	.....	.....	BBT30P060FNI	BBT30P060FNI	*4
	Screw	BBT30P060FZK	BBT30P060FZK	BBT30P060FZK	.....	.....	*4

*1 : Refer to page 4.
*2 : Refer to page 2.
*3 : For AC power cord wraping.
*4 : For both side of bonnet.

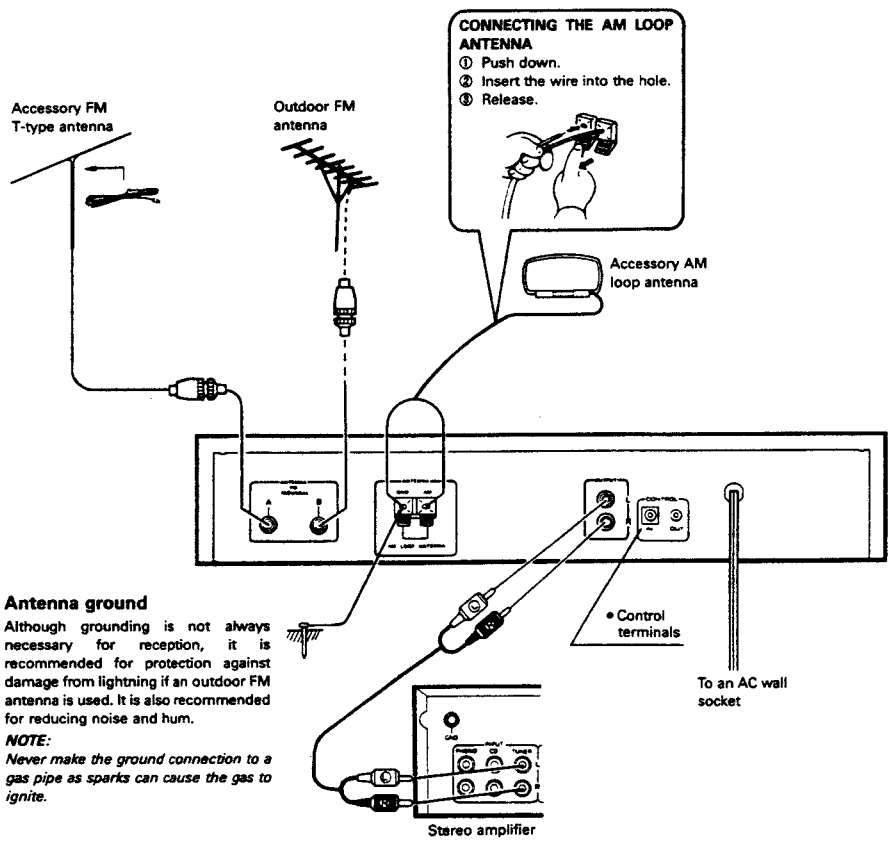
TUNER ASSEMBLY
AWZ4781 and AWZ4778 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		AWZ4778	AWZ4781	
	C621, C622	CKDYB472K50	CKDYB332K50	
	C623	CKDYX103M25	.....	
	L602	LAU010K	.....	
	L603, L604	LAU100K	.....	
	R609, R610	RD1/8PM183J	RD1/8PM123J	
	R611, R612	RD1/4PM333J	RD1/4PM303J	
	R617, R618	RDR1/4PM561J	RDR1/4PM102J	
	R619, R620	RDR1/4PM222J	RDR1/4PM152J	

POWER ASSEMBLY
AWZ4782 and AWZ4779 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		AWZ4779	AWZ4782	
	C703	ACG1002	.....	
	L701	ATFI135	.....	

9. CONNECTIONS



Antenna ground

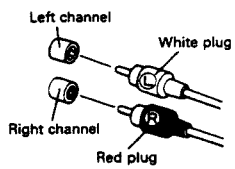
Although grounding is not always necessary for reception, it is recommended for protection against damage from lightning if an outdoor FM antenna is used. It is also recommended for reducing noise and hum.

NOTE:

Never make the ground connection to a gas pipe as sparks can cause the gas to ignite.

Pin plug connecting cord

- Connect the white plug to the white terminal (L) and the red plug to the red terminal (R).
- Make sure that the connection of pin plug is secure.



• Control Terminals

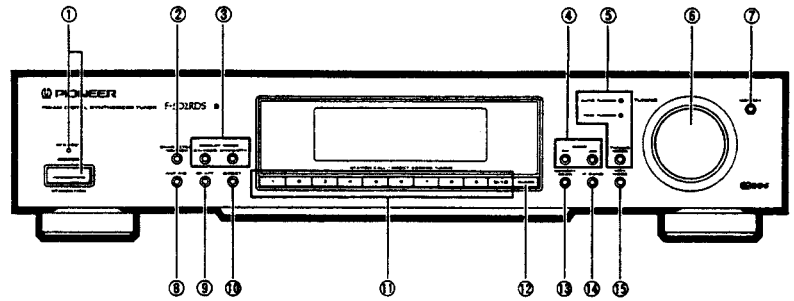
When using together with Pioneer component with ◘ mark, connect the CONTROL IN terminal on the rear panel of the tuner to the CONTROL OUT terminal on the component using the supplied control cord. This will enable the tuner to be controlled from a distance, with the remote control unit supplied with the component.

When this feature is not used, connection is not necessary.

- The remote control unit can be used for band selecting, preset station tuning, and tuning (up/down) operations.
- For instructions regarding connection and operation, please refer to the operating instruction manual of your stereo component.

F-502RDS, F-502RDS-G

10. PANEL FACILITIES



① POWER (STANDBY/ON) switch/STANDBY indicator

This is the switch for electric power.

ON ..... When set to ON position, power is supplied and the unit becomes operational.

STANDBY .. When set to STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.

NOTE:

- *The memory will be backed up so long as the power cord is not unplugged.*
- *If the power cord is unplugged, the memory will be retained for several days.*
- *When not using the unit for a long period, disconnect the power cord.*

② CHARACTER/SEARCH button

When receiving an AM broadcast, or when in the FM RT, PS modes:

Press this button, "INPUT" is displayed, and the mode switches to manual station name input.

When in the FM PTY mode:

Press this button, "SEARCH" is displayed, and the mode switches to program type search.

③ DISPLAY MODE buttons

CT/FREQ:

Switches between frequency and clock time displays during FM reception. Each time you press it, the display changes as follows.

CT (clock time) → FREQ (frequency) →

RT/PS/PTY:

Switches between displays during FM reception. Each time you press it, the display changes as follows.

RT mode .....Displays PS → RT → PTY in sequence. (Skipped when there is no PTY data.)
↓
PS mode
↓
PTY mode

④ BAND selector buttons

These buttons are used to select either FM or AM reception.

FM : Press to receive FM broadcasts.

AM : Press to receive AM broadcasts.

⑤ TUNING MODE button and AUTO TUNING • FINE TUNING indicator

Each time you press this button, the TUNING knob's function changes as follows.

AM:

Manual tuning mode
↓
Auto tuning mode
AUTO TUNING indicator lights up.

FM:

Manual tuning mode
↓
Auto tuning mode
AUTO TUNING indicator lights up.
↓
Fine tuning mode
FINE TUNING indicator lights up.

NOTE:

Switching to AM from the FM fine tuning mode will result in the manual tuning mode.

⑥ TUNING knob

Use for tuning. To raise the frequency, turn in a clockwise direction; to lower the frequency, turn counterclockwise.

AM : Frequency changes in 9 kHz steps.

FM : Frequency changes in 50 kHz steps when FINE TUNING is off, and 25 kHz steps when FINE TUNING is on.

In the Manual Name input mode, and PTY Search mode, use to select characters and program type.

⑦ MEMORY button

Use to preset stations.

This is also used for FM broadcast manual station name character selection.

⑧ ANT A/B button

Selects between two antennas connected to the FM antenna A and B terminals. [ANT A] or [ANT B] indicator lights up.

NOTE:
This button's status is preset for each station in station memory.

⑨ RF ATT button

Set this button to on when receiving strong FM signals (nearby stations) to reduce sound distortion (RF ATT indicator lights).
Normally, this button should be set to off.
This button does not affect AM reception.

NOTE:
This button's status is preset for each station in station memory.

⑩ DIRECT button

When this button is pressed, the STATION CALL buttons function as ten-key number buttons for direct input of the desired reception frequency. Press again to cancel this mode.

⑪ STATION CALL buttons

Use these buttons to preset stations and to receive already preset stations.
These are also used when performing direct access tuning.

⑫ CLASS button

Use to switch between preset memory classes 1 to 4. In each class, one station can be memorized in each of the 1 to 10 STATION CALL buttons, enabling a total of 40 stations to be memorized.

⑬ MEMORY SCAN button

This button is used for station memory scan.
Press to receive currently selected class and preset stations for a few seconds in sequence. Press again, and reception of the station presently being received will continue.

⑭ IF BAND button

Each time this button is pressed, the bandwidth of the IF circuit switches between "normal" and "narrow" for the FM band.
The NORMAL or NARROW indicator lights up.
Set to NARROW in case of interference from other stations.
This button does not affect AM reception.

NOTE:
This button's status is preset for each station in station memory.

⑮ MPX (multiplex) MODE button

Mode changes as follows each time this button is pressed.

AUTO → MONO

This button does not affect AM reception.

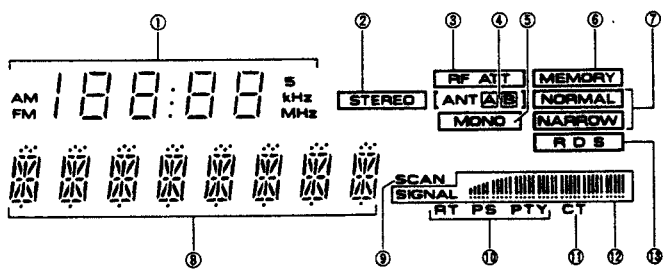
• **AUTO:**
Normally leave in this mode for reception. When a stereo FM broadcast is received, it will be automatically reproduced in stereo sound and STEREO indicator lights up.

NOTE:
When the signal level is too weak for reception, sound output is automatically muted.

• **MONO:**
MONO indicator lights up.
To receive stereo broadcasts in monaural.
If there is a lot of noise during stereo reception of a weak signal, you can reduce the level of noise by switching to MONO.

NOTE:
This button's status is preset for each station in station memory.

OPERATING DISPLAY



① Clock time/frequency indicator

Clock Time (CT) data, band, and frequency data is displayed.
Class and station number are displayed when manual station name memory is used.

② STEREO indicator

Lights up when a stereo broadcast is received. (The indicator does not light when the MPX MODE button is set to MONO.)

③ RF ATT indicator

Stays lit while RF ATT button is on.

④ ANT A B indicator

This indicates the selected antenna.

⑤ MONO indicator

Stays lit while MPX MODE button is set to MONO.

⑥ MEMORY indicator

⑦ NORMAL/NARROW indicators

NORMAL: Stays lit while IF BAND button is set to NORMAL.
NARROW: Stays lit while IF BAND button is set to NARROW.

⑧ Character · Class Display

During FM reception, the display changes as follows each time the DISPLAY MODE RT/PS/PTY button is pressed.

RT mode .....Displays PS → RT → PTY in sequence.
(Skipped when there is no PTY data.)
↓
PS mode
↓
PTY mode
↓

⑨ SCAN indicator

Lights during station memory scan.

⑩ RT, PS, PTY indicator

One of these lights to indicate the selected display mode. (Selected by the DISPLAY MODE RT/PS/PTY button).

⑪ CT indicator

Time is displayed when the CT data is received. It switches to frequency mode display if not lit.

⑫ SIGNAL indicator

⑬ RDS indicator

Lights when an RDS broadcast is received.

11. SPECIFICATIONS

TECHNISCHE DATEN — German

UKW-Tunerteil

Frequenzbereich ..... 87,5 bis 108 MHz
Nutzempfindlichkeit
NORMAL ..... Mono: 12,1 dBf, IHF (1,1 µV/75 Ω)
50 dB Empfindlichkeitsschwelle
NORMAL ..... Mono: 16,2 dBf, IHF (1,8 µV/75 Ω)
Stereo: 36,2 dBf, IHF (17,7 µV/75 Ω)
Empfindlichkeit (DIN)
NORMAL ..... Mono: 0,9 µV/75 Ω
Stereo: 28 µV/75 Ω
Signal/Rauschabstand ..... Mono: 84 dB (bei 80 dBf)
Stereo: 78 dB (bei 80 dBf)
Signal/Rauschabstand (DIN) ..... Mono: 72 dB
Stereo: 65 dB
Verzerrung (bei 80 dBf)
NORMAL ..... Mono: 0,06 % (1 kHz)
Stereo: 0,15 % (1 kHz)
NARROW ..... Mono: 0,2 % (1 kHz)
Stereo: 0,8 % (1 kHz)
Ausweichkanal-Trennschärfe
NORMAL ..... 75 dB (400 kHz)
NARROW ..... 75 dB (300 kHz)
Stereotrennung ..... 55 dB (1 kHz)
40 dB (20 Hz bis 10 kHz)
Frequenzgang ..... ±1 dB (20 Hz bis 15 kHz)
Spiegelselektion ..... 80 dB
ZF-Sicherheit ..... 90 dB
AM-Unterdrückung ..... 60 dB
Nebenwellenunterdrückung ..... 70 dB
Hilfsträgerunterdrückung ..... 55 dB
Ansprechschwelle für Geräuschsperre ..... 28,2 dBf (7,1 µV/75 Ω)
Antenneneingang ..... 75 Ω unsymmetrisch

MW-Tunerteil

Frequenzbereich ..... 531 kHz bis 1.602 kHz (Schritten 9 kHz)
Empfindlichkeit (IHF, Rahmenantenne) ..... 300 µV/m
Trennschärfe ..... 40 dB
Signal/Rauschabstand ..... 55 dB
Spiegelselektion ..... 40 dB
ZF-Sicherheit ..... 50 dB
Antenne ..... Rahmenantenne

Audioteil

Ausgang (Pegel/Impedanz)
UKW (100 % Mod.) ..... 1 V/0,9 kΩ
MW (30 % Mod.) ..... 220 mV/0,9 kΩ

Sonstiges

Netzspannung ..... Wechselstrom 220 — 230 Volts, 50/60 Hz
Leistungsaufnahme ..... 20 W
Abmessungen ..... 420 (B) x 86 (H) x 340 (T) mm
Gewicht (ohne Verpackung) ..... 3,6 kg

Mitgeliefertes Zubehör

T-förmige UKW-Antenne 1
MW-Rahmenantenne 1
Cinch-Anschlußkabel 1
Bedienungsanleitung 1
Steuerungskabel 1

HINWEIS:
Änderung des Designs und der technischen Daten zum Zwecke der Verbesserung vorbehalten.

SPECIFICHE TECHNICHE — Italian

Sezione del sintonizzatore FM

Gamma di frequenza ..... Da 87,5 a 108 MHz
Sensibilità usufruibile
NORMAL ..... Mono: 12,1 dBf, IHF (1,1 µV/75 Ω)
Sensibilità di smorzamento a 50 dB
NORMAL ..... Mono: 16,2 dBf, IHF (1,8 µV/75 Ω)
Stereo: 36,2 dBf, IHF (17,7 µV/75 Ω)
Sensibilità (DIN)
NORMAL ..... Mono: 0,9 µV/75 Ω
Stereo: 28 µV/75 Ω
Rapporto S/R ..... Mono: 84 dB (a 80 dBf)
Stereo: 78 dB (a 80 dBf)
Rapporto S/R (DIN) ..... Mono: 72 dB
Stereo: 65 dB
Distorsione (a 80 dBf)
NORMAL ..... Mono: 0,06 % (1 kHz)
Stereo: 0,15 % (1 kHz)
NARROW ..... Mono: 0,2 % (1 kHz)
Stereo: 0,8 % (1 kHz)
Selettività canali alternati
NORMAL ..... 75 dB (400 kHz)
NARROW ..... 75 dB (300 kHz)
Separazione stereo ..... 55 dB (1 kHz)
40 dB (da 20 Hz a 10 kHz)
Risposta di frequenza ..... ±1 dB (da 20 Hz a 15 kHz)
Rapporto risposta d'immagine ..... 80 dB
Rapporto risposta IF ..... 90 dB
Rapporto di soppressione AM ..... 60 dB
Rapporto di risposta spurio ..... 70 dB
Rapporto prodotto sottoportante ..... 55 dB
Soglia di silenziamento ..... 28,2 dBf (7,1 µV/75 Ω)
Ingresso antenna ..... 75 Ω non bilanciato

Sezione del sintonizzatore AM

Gamma di frequenza ..... Da 531 a 1.602 kHz (passi di 9 kHz)
Sensibilità (IHF, antenna ad anello) ..... 300 µV/m
Selettività ..... 40 dB
Rapporto S/R ..... 55 dB
Rapporto risposta d'immagine ..... 40 dB
Rapporto risposta IF ..... 50 dB
Antenna ..... Antenna ad anello

Sezione audio

Uscita (livello/impedenza)
FM (100 % MOD) ..... 1 V/0,9 kΩ
AM (30 % MOD) ..... 220 mV/0,9 kΩ

Varie

Alimentazione ..... c.a. 220 — 230 Volts, 50/60 Hz
Consumo ..... 20 W
Dimensioni ..... 420 (L) x 86 (A) x 340 (P) mm
Peso (senza imballaggio) ..... 3,6 kg

Accessori in dotazione

Antenna FM a T 1
Antenna AM ad anello 1
Cavo di collegamento con spinotti a spillo 1
Istruzioni per l'uso 1
Cavo di controllo 1

NOTA:
Le specifiche tecniche ed il disegno sono soggetti a possibili modifiche senza preavviso per motivi di miglioramento.